

Regulating Off - Street Parking Through Zoning

A Case Study of Bank & Restaurant Parking

**Council of Governments
Central Naugatuck Valley**

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1. An Overview of Zoning Controls for Off-Street Parking

In order to prevent traffic congestion and to provide adequate parking space for developments served by the highway system, zoning commissions generally require that adequate off-street parking be established as part of the development proposal. An inadequate level of parking space could lead to lines of traffic backing into the highway or it could result in parking along the highway right-of-way. Both of these conditions create highway safety problems that can be minimized by requiring developers to provide a safe minimum level of parking based on the expected peak parking needs of the development.

Historically, zoning commissions have relied on four or five national standards setting organizations in establishing minimum parking space requirements for residential, commercial and industrial land uses (see Table 1). While national standards have been widely used they must be applied with some caution. For one, most national standards were developed 10 to 20 years ago and may not reflect current parking demand. For example, changes in the number of automobiles per household, changes in consumer buying habits and other economic and social factors have changed the parking space needs of many types of residential and commercial developments. Secondly, the parking space needs of certain types of developments (i.e., commercial facilities) are influenced by location and accessibility factors. A restaurant located on a busy arterial highway may generate more traffic than the same restaurant located on a low volume local street. Finally, parking needs are influenced by the share of the market that a commercial facility captures. A foodstore that is part of a popular national chain will probably attract greater numbers of customers than a "mom and pop" foodstore of comparable size at the location.

In light of the limitations and biases inherent in the use of national parking standards, in 1984 the Council of Governments' staff began an investigation of the actual parking space requirements of commercial developments in the Central Naugatuck Valley Region. This report summarizes the results of the Council's research and provides recommendations for revised zoning standards for off-street parking.

2. Local Zoning Standards for Off-Street Parking

In order to determine the validity of local zoning standards for off-street parking, the Council of Governments' staff conducted field studies of the parking space needs of selected banks and fast food restaurants in the Central Naugatuck Valley Region. A total of 6 banks and 11 restaurants were surveyed during the summer and fall of 1984. Based on the survey results it was determined that many municipalities have not required sufficient off-street parking space to meet the peak hour parking needs of banks or restaurants.

2a. Bank Off-Street Parking Requirements

In the case of banks, the survey results indicate that the average bank should provide about 8.0 spaces for every 1,000 square feet of bank floor area (see Table 2). This is an average standard and should be utilized with caution since the number of peak hour parking spaces per 1,000 square feet of bank floor area ranged from 5 (Cheshire) to 15 (Oakville). Another reason for caution when using this data is that the parking space requirements in suburban municipalities appear to be higher than those for urban areas. For example, the survey found that the peak parking space requirements of suburban municipalities were

almost twice as high as those for the City of Waterbury. In the suburban municipalities about 10 parking spaces per 1,000 square feet of floor area are required at peak hours whereas the peak hour parking space requirements in Waterbury are only about 5.4 spaces per 1,000 square feet of floor area.

In contrast, the minimum zoning standards for off-street parking spaces for banks range from 3.3 to 8.0 spaces per 1,000 square feet of floor area. In most cases, the zoning standards for off-street parking space were inadequate to accommodate the peak hour parking levels witnessed by the Council of Governments' staff (see Table 3). From a public safety standpoint it was fortunate that five out of the six banking facilities surveyed provided more parking spaces than the zoning regulations required be installed.

2b. Restaurant Off-Street Parking Requirements

In the case of fast food restaurants,* the survey results indicate that the average fast food restaurant should provide about 16 parking spaces for every 1,000 square feet of restaurant floor area. As with banks, there was considerable variation in the need for peak hour restaurant parking spaces ranging from a low of 9.3 spaces to a high of 25.3 spaces per 1,000 square feet of floor area.

Local zoning standards for the minimum number of required off-street parking spaces for restaurants ranged from 10 to 20 spaces per 1,000 square feet of floor area. As can be seen in Table 4 about half of the municipalities impose standards which are on the average inadequate to meet the off-street parking space needs of fast food restaurants.

*The fast food restaurants surveyed by the Council of Governments' staff were McDonald's, Farm Shop, Friendly's, Burger King.

3. A Performance Approach to Determining Parking Demand

There appears to be some evidence that the required minimum level of parking space for banks and restaurants varies with the size of the facility. As can be seen in Figure 1, the smallest bank in the Council's survey (600 square feet) generated almost three times the number of vehicles for each 1,000 square feet of floor area as the largest bank (3,500 square feet).

Similarly, the smallest restaurant in the Council's survey (1,980 square feet) generated about 40% more vehicles for each 1,000 square feet of floor area as the largest restaurant (4,977 square feet). These findings appear to indicate that above a certain threshold of size the need for parking space decreases with the size of the commercial facility. These findings are generally supported by the research of Robert Boylan and Neil S. Kenig in their study, An Approach to Determining Parking Demand. The implications of these findings are that planning and zoning commissions should consider supplementing their basic standards for the minimum level of off-street parking spaces with standards that require a different rate for providing parking spaces for commercial facilities above a certain size. For example, the City of Waterbury requires that all restaurants provide at least 25 parking spaces but then also requires that restaurants of a larger size provide 1 space for each 50 square feet of gross floor area when automobile service is provided and 1 space for each 100 square feet of gross floor area when no automobile service is provided.

Similarly, the Cheshire Planning and Zoning Commission recognized that larger commercial facilities should provide parking spaces at a different rate than smaller facilities and therefore allows for a 10% reduction in the number of parking spaces for any single use facility requiring 200 or more parking spaces.

It may also be reasonable to allow developers to provide fewer parking spaces than required by regulation if they can document that adequate off-street parking can still be provided based on relevant market studies of parking demand.

4. Zoning Standards for Shared Parking

With the exception of Oxford and Prospect, all of the zoning regulations in the Region allow for the development of shared parking facilities.* However, shared parking facilities are only allowed if the total number of required parking spaces for each use is provided in the shared facility.** This approach to shared parking does not allow for any opportunity for reducing overall parking space requirements when the uses sharing a joint parking facility have different peak hour parking characteristics. For example, based on the COG survey of fast food restaurants only about 60% of all the required off-street restaurant parking spaces are actually occupied between the hours of 9:30 a.m. and 11:30 p.m. and 1:30 p.m. and 5:30 p.m. (see Figure 2). A facility such as an office or hotel which has peak parking requirements in the morning and afternoon but not at the lunch hour could share its space with a restaurant with the possibility of an overall reduction of parking spaces because the peak parking requirements of each use occur at different hours. With this in mind, it would appear reasonable to allow for less restrictive parking standards for mixed use developments if the applicant can demonstrate that a reduced number of parking spaces can still meet the peak parking needs of all uses within the mixed use development.

*Shared parking facilities are defined by most local zoning regulations as joint parking areas where the total number of off-street parking spaces for each use is provided in accordance with the minimum parking space standards. Under this definition, joint use of parking spaces does not provide for parking space reductions but merely for the aggregation of individual parking space needs into one common lot.

**The only exception is Cheshire where the zoning regulations allow for a 10% reduction in the number of spaces when a shared parking facility involves the creation of 300 or more parking spaces.

Fortunately five municipalities in the Region explicitly provide for modification of parking standards if the applicant can demonstrate that the minimum number of parking spaces required by the zoning regulations would create an excess of parking spaces for the development in questions. (See Table 5.)

Significantly, a study titled Shared Parking conducted under the direction of the Urban Land Institute found that next to financial incentives, the reduction of parking requirements for mixed use developments was the most useful incentive that local governments could offer developers. With this in mind, it might be useful to developers if each municipality in the Region expressly permitted a reduction in the parking space requirements for joint facilities above a certain minimum size. One of the environmental benefits of this approach is that the overall paved surface area would be reduced, thereby reducing water runoff from the site. Energy benefits could also be created if the zoning commission wished to require that in exchange for a reduction in the number of parking spaces, the developer guarantee the establishment of a carpool or vanpool program for employees working at the proposed facility.

Under Public Act 84-497 Zoning Commissions may require developers to provide ridesharing programs or other forms of public transportation to users of the proposed development in exchange for reductions in the required minimum number of off-street parking spaces. While Public Act 84-497 opens up some novel ideas for encouraging ridesharing, it does not offer any guidance as to how minimum parking space requirements could be reduced without jeopardizing the parking space needs of any given facility. Based on the findings of this study, it appears reasonable to conclude that any proposals to reduce parking space should be limited to large facilities which are inequitably treated by current zoning standards for off-street parking space.

5. Zoning Standards for Queuing Space

During the last 30 years a variety of land uses have emerged which rely on business generated by drive-in customers. Today you can go banking, "eat out" or go to a movie without leaving the comfort of your car. The increasing popularity of drive-in services has influenced the types of services offered to the public as well as the methods of providing those services.

From a public safety standpoint, drive-in services must be able to provide adequate off-street queuing space to avoid blocking moving traffic. A review of local zoning regulations revealed that this public safety issue has not been addressed by any of the Region's municipalities. As of April 1985, none of the 13 municipalities in the Central Naugatuck Valley Region regulates the minimum number of queuing spaces for drive-in businesses or provides standards on the location or setbacks appropriate for drive-in facilities. The Highway Research Board, in its 1971 Special Report Parking Principles, emphasized the importance of controlling queuing at drive-ins through local zoning regulations. According to Parking Principles:

"Zoning code requirements should call for adequate reservoir capacity so that cars waiting for entry to a facility do not obstruct the adjacent street. This is most significant when associated with such land uses as drive-in banks and theaters, car washes, and attendant park garages. Reservoir requirements should reflect the differing peak characteristics of individual facilities."*

*Parking Principles, Special Report 125, Highway Research Board, 1971, p.40

In order to determine minimum standards for off-street queuing spaces, the Council of Governments' staff collected data on the queuing characteristics of drive-in banks and restaurants. The survey results indicate that the average drive-in restaurant requires about 11 queuing spaces during its peak hour of drive-in business (with a range from a low of 6 automobiles to a high of 13).

In the case of banks, the survey data suggests that the average drive-in window requires about 5 queuing spaces during its peak hour of drive-in business (with a range from a low of 3 automobiles to a high of 6).

In light of the Council's survey data, local zoning regulations should be addressing the public safety issues generated by a wide variety of drive-in businesses. Queuing space standards were developed by the former Highway Research Board (HRB) which indicate that a minimum of 12 inbound reservoir spaces should be available for drive-in banks. Allowing a margin of safety for peak period queuing space needs, it would appear that the HRB standard of 12 reservoir spaces is reasonable for drive-in banks. However, based on the Council's survey of fast food restaurants and allowing a margin of safety for peak period queuing space needs, at least 15 reservoir spaces should be provided for fast food restaurants.

6. Zoning Standards for the Location of Off-Street Parking

Off-street parking spaces should be designed to avoid interference with the public street system and adjoining property. Parking spaces that are located too close to the highway right-of-way may interfere with on-street traffic or

create highway safety problems. For example, if off-street parking spaces are designed to allow automobiles to back into the street or to block motorists' line of sight along the highways, off-street parking designs could contribute to higher than normal accident rates.

Fortunately, 9 out of 12 municipalities with zoning regulations require that off-street parking spaces be designed to avoid vehicles backing into the street right-of-way. In addition, five municipalities have provided an added precautionary measure of requiring parking facilities to be setback a minimum distance from the street line. This requirement ensures that vehicles are not parked with part of the vehicle hanging over into the street right-of-way and that vehicles do not directly back into the public street.

For public safety and aesthetic reasons, seven municipalities have also stipulated that vegetative buffers or fences must be installed along the street line generally whenever an off-street parking facility is located within 10 feet of a street line. (See Table 5.) Vegetative buffers and fences when coupled with a controlled access driveway system ensures that vehicles enter and exit the highway system at predictable and more easily controlled locations.

7. Recommendations

Off-street parking regulations need to be reevaluated and updated in light of social and economic changes which have occurred within American society. Based on the findings of this study we would recommend that local zoning regulations be revised as follows:

- a. The minimum off-street parking standards for banks and restaurants should be revised to reflect market conditions identified by the Council's survey.
- b. In suburban locations off-street parking spaces for banks should be provided at the rate of 1 parking space for every 100 square feet of bank floor area.
- c. In urban locations off-street parking spaces for banks should be provided at the rate of 1 parking space for every 125 square feet of bank floor area.
- d. In general, off-street parking spaces for fast food restaurants should be provided at the rate of 1 parking space for every 60 square feet of restaurant floor area.
- e. Planning and Zoning Commissions should consider permitting predetermined reductions in the minimum parking space rate required of large commercial facilities or large joint facilities. Moreover, whenever an applicant can demonstrate that a lesser number of spaces than required by ordinance would adequately handle peak hour demand, smaller commercial facilities should be granted a variance in the minimum parking space standards.
- f. Planning and zoning commissions should consider requiring ridesharing strategies as one of the conditions for allowing an overall reduction in the minimum number of required off-street parking spaces in large commercial facilities.

- g. Zoning regulations in the Central Naugatuck Valley Region should be revised to include standards for the minimum reservoir capacity of restaurant and bank drive-in queuing spaces. Based on National HRB standards and Council recommendations, a minimum of 15 drive-in queuing spaces should be provided for restaurants and 12 drive-in queuing spaces be provided for banks.
- h. Adequate separation of off-street parking from the street right-of-way should be accomplished by providing setback standards for off-street parking facilities within the zoning regulations of all municipalities in the Central Naugatuck Valley Region.
- i. The Council of Governments should complete its analysis of the parking space needs of a variety of commercial and residential uses to assist zoning commissions with the development of "market based minimum off-street parking space standards".

Table 1: Minimum Off-Street Parking Standards
for Banks and Restaurants

	Square Feet of Building Area per Parking Space		Number of Parking Spaces per Seat
	Banks	Restaurants	Restaurants
Eno Foundation ¹	300	-	.25
Highway Research Board ²	300	-	.30
Wilbur Smith Associates ³	-	-	.30
National Parking Association ⁴	400	350	-
Kendig ⁵	200	100	.33
Institute of Transportation Engineers ⁶	-	-	.30
Boylan & Kenig ⁷	-	63	-
Homburger & Kell ⁸	400	100	-

¹Zoning, Parking & Traffic, Eno Foundation for Transportation, 1972.

²Parking Principles, Special Report 125, Highway Research Board, 1971.

³Parking in the City Center, Wilbur Smith & Associates, 1965.

⁴Recommended Zoning Ordinance Provisions for Parking, National Parking Association, September 1981.

⁵Performance Zoning, Lane Kendig, 1980.

⁶Transportation & Traffic Engineering Handbook, Institute of Transportation Engineers, 1982.

⁷An Approach to Determining Parking Demand, Planning Advisory Service Report No. 270, Robert J. Boylan and Neil S. Kenig, 1971.

⁸Fundamentals of Traffic Engineering, Institute of Transportation Studies, Wolfgang S. Homburger & James H. Kell, 1981.

Table 2: Vehicles per 1,000 Square
Feet of Bank Floor Area

Municipality	Maximum	Minimum	Square Footage
Cheshire	5.1	2.0	3,500
Oakville	15.0	3.3	600
Prospect	11.5	5.4	1,300
Waterbury			
Mill Plain	7.5	2.7	2,550
Town Plot	4.7	0.7	2,800
Wolcott	12.0*	4.0*	1,500
Average	7.9	2.6	-
Suburban Average	9.8	3.3	-

*This reflects the subtraction of 8 vehicles from the actual parking count. These 8 vehicles belonged to postal workers who share the parking facility with the Wolcott bank.

Source: Parking occupancy survey conducted by COGCNV staff June and July 1984.

Table 3: Summary of Zoning Standards and Parking Spaces Provided
at 6 Banks in the Central Naugatuck Valley Region: July 1984

Location of Bank	Zoning Standards for Parking Spaces per 1,000 Sq.Ft. of Floor Space	Minimum Required Spaces By Zoning	Actual Spaces Provided	Observed Peak Parking Accumulation	Observed Minimum Parking Accumulation
Cheshire	6.6	23.3	24	18	7
Oakville	8.0	4.8	10	9	3
Prospect	3.3	4.3	16	15	7
Waterbury					
Town Plot	4.0	11.2	19	10	2
Mill Plain	4.0	10.2	24	19	7
Wolcott	6.6	10.0	29	26	6
Total	-	-	122	97	32
Total (Suburban only)	-	-	79	68	23

Source: Parking occupancy survey conducted by COGCNV staff June and July 1984.

Size of 6 Banking Facilities
Surveyed by COGCNV Staff

Location of Bank	Square Footage of Bank Floor Area	Size of Property (in acres)
Cheshire	3,500	1.00
Oakville	600	0.25
Prospect	1,300	1.50
Waterbury		
Mill Plain	2,550	0.50
Town Plot	2,800	0.50
Wolcott	1,500	4.00
Total	12,250	7.75
Total (suburban)	6,900	6.75

Source: Parking occupancy survey conducted by COGCNV staff June and July 1984.

Table 4: Comparison of Parking Standards and Parking Space Needs of
11 Restaurants in the Central Naugatuck Valley Region: December 1984

Municipality	Name of Restaurant	Address	Drive-In	Zoning Standards for Parking Spaces per 1000 sq.ft. Gross Floor Space	Restaurant Floor Area (sq.ft.)	Minimum Required Spaces by Zoning	Actual Spaces Provided	Observed Peak Parking Accumulation	Restaurant Seats Provided	Maximum Number of Vehicles per 1000 Sq.Ft.	Maximum Number Vehicles per Restaurant Seat
Cheshire	McDonald's	Route 10	No	13.3/10 ¹	3,480	39	84	47	128	13.5	.66
Naugatuck	McDonald's	718 Rubber Ave.	Yes	13.3	2,646	35	50	42	62	15.9	.81
	Farm Shop	Rubber Ave.	No	13.3	2,958	39	67	46	104	15.5	.64
Waterbury	McDonald's	530 Reidville Dr.	Yes	20.0 ²	3,480	70	110	66	128	19.0	.86
	Burger King	166 Thomaston Ave.	Yes	20.0 ²	3,035	60	60	48	90	15.8	.66
	Farm Shop	586 Plank Rd.	No	10.0 ³	2,835	28	62	50	100	17.6	.62
	Friendly	544 Reidville Dr.	No	10.0 ³	4,977	50	84	78	134	15.7	.63
	McDonald's	45 Thomaston Ave.	Yes	20.0 ²	2,150	43	68	50	92	25.3	.54
	Burger King	Lakewood Road	Yes	20.0 ²	2,250	45	45	22	70	9.8	.31
	Farm Shop	579 Watertown Ave.	No	10.0 ³	2,212	22	52	41	99	18.5	.41
	Farm Shop	753 Lakewood Rd	No	10.0 ³	2,800	28	40	26	90	9.3	.29
TOTAL					32,823	459	722	516	1,097	15.8	.47

¹Cheshire requires one space for each 75 square feet of customer space plus one space for each 100 square feet of other floor area.

²These minimum requirements apply to establishments with service to automobiles.

³These minimum requirements apply to eating and drinking establishments without automobile service.

Source: Prepared by the staff of the Council of Governments based on restaurant parking surveys conducted in the Fall and Winter of 1984 and information supplied by the Cheshire, Naugatuck and Waterbury Tax Assessors' offices, December 27, 1984.

Table 5: Comparison of Zoning Requirements for Off-Street Parking
in the Central Naugatuck Valley Region: 1985

Municipality	Shared Parking Facilities Allowed	Parking Space to be Designed to Avoid Vehicle Backing into Street ROW	Required Setback of Parking from Street Line	Required Setback of Parking from Property Line	Required Setback of Parking from Residence District ¹ Boundary	Permit Modification of Parking Standards by Appeal	Is There A Required Buffer or Fence at Street Line	Buffer or Fence Required When Parking is Within Distance Listed Below (feet)
Beacon Falls	Yes	Yes	No	No	No	No	Yes	10
Bethlehem	- - - - - No Zoning Regulations - - - - -							
Cheshire	Yes	Yes	Yes	Yes	Yes	No	No	-
Middlebury	Yes	Yes	No	No	No	No	Yes	10
Naugatuck	Yes	Yes	No	No	No	Yes	Yes	10
Oxford	No	No	No	No	No	Yes	No	-
Prospect	No	Yes ²	Yes	Yes	No	No	No	-
Southbury	Yes	Yes	Yes	Yes	Yes	Yes	Yes	20
Thomaston	Yes	No	No	No	No	No	No	-
Waterbury	Yes	No	No ³	No ³	No	No	Yes ⁴	-
Watertown	Yes	Yes	No	No	Yes	Yes	Yes	10
Wolcott	Yes	No	Yes	Yes	No	No	No	-
Woodbury	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10

¹These standards apply to commercial and industrial uses.

²Cannot back into the street (no mention of street right-of-way).

³Parking spaces may be in setback area except in residential districts.

⁴Only when 10 or more spaces are developed.

Source: Prepared by the Staff of the Council of Governments
based on the zoning regulations of each municipality,
March 1985.

Figure 1: Maximum Vehicle Accumulation Rates per 1,000 Square Feet of Floor Area
(Banks and Restaurants)

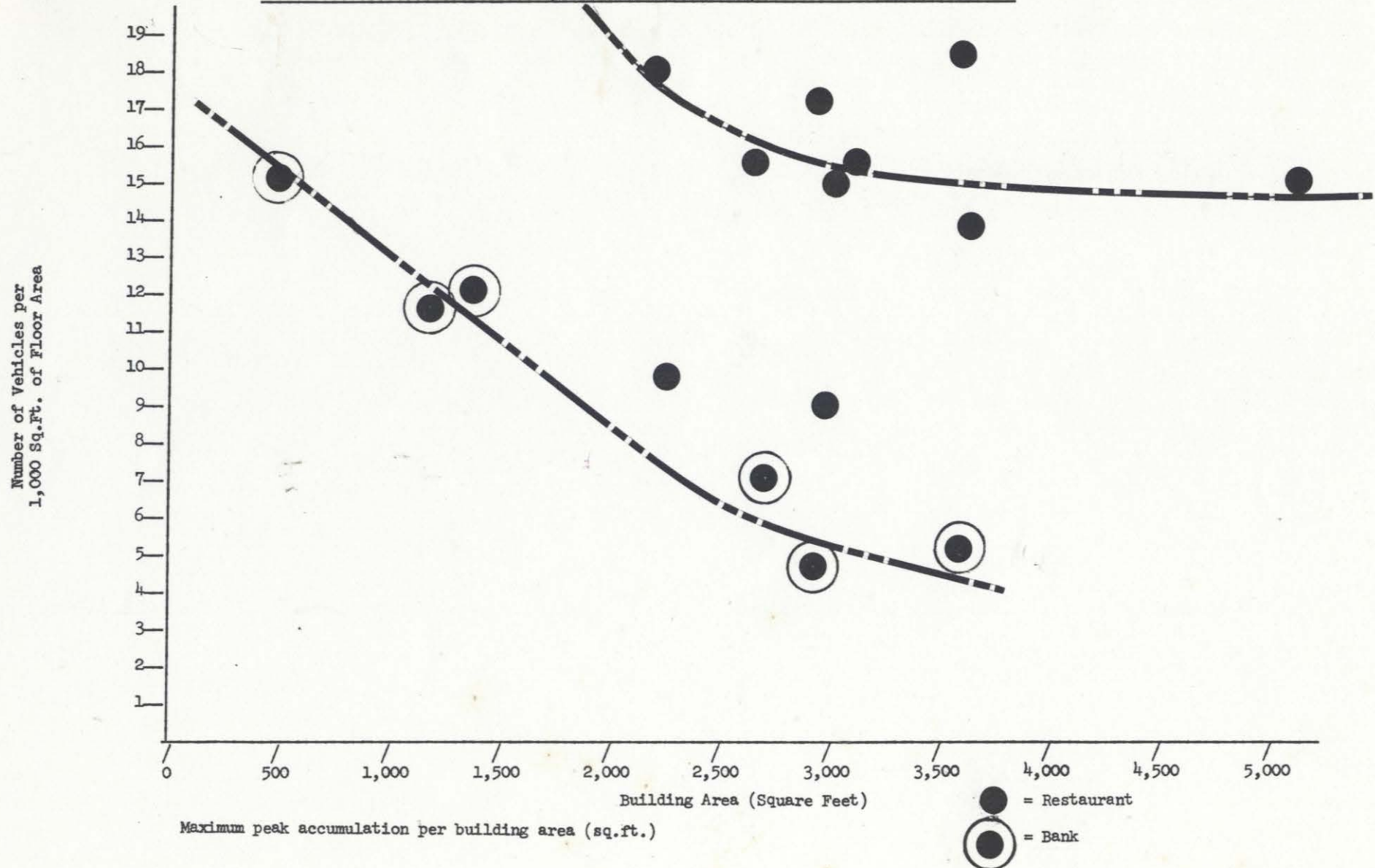


Figure 2: Hourly Average Parking Space Needs of Fast Food Restaurants in the Central Naugatuck Valley Region: January 1985

